

**What is claimed:**

1. A broadband modem termination system for managing data transmissions through a broadband network that interconnects a plurality of end user locations and a head-end, said broadband network comprising a hierarchical network having at least two levels, said broadband modem termination system comprising:

5 downstream data transmission means, located at a first level of said hierarchical network, for transmitting data in a downstream direction from a source of program material at said head-end to selected ones of said plurality of end user locations; and

10 upstream data transmission means, located at a second level of said hierarchical network, for transmitting control data received from at least one of said plurality of end user locations in an upstream direction to said head-end, wherein said second level is located downstream of said first level in said hierarchical network.

15 2. The broadband modem termination system of claim 1 wherein said downstream data transmission means comprises:

means for converting data received in digital baseband IP format to data in a radio frequency based format for transmission to selected ones of said plurality of end 20 user locations.

3. The broadband modem termination system of claim 2 wherein said upstream data transmission means comprises:

means for converting data received in a radio frequency based format to data 25 in digital baseband IP format for transmission to said head-end.

4. The broadband modem termination system of claim 1 wherein said downstream data transmission means and said upstream data transmission means operate independent of each other.

5. The broadband modem termination system of claim 1 wherein said upstream data transmission means comprises:

means for converting data received in a radio frequency based format to data in digital baseband IP format for transmission to said head-end.

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6. A method of operating a broadband modem termination system for managing data transmissions through a broadband network that interconnects a plurality of end user locations and a head-end, said broadband network comprising a hierarchical network having at least two levels, said broadband modem termination system comprising the steps of:

10 transmitting data from a downstream data transmission apparatus, located at a first level of said hierarchical network, in a downstream direction from a source of program material at said head-end to selected ones of said plurality of end user locations; and

15 transmitting control data from an upstream data transmission apparatus, located at a second level of said hierarchical network, and received from at least one of said plurality of end user locations in an upstream direction to said head-end, wherein said second level is located downstream of said first level in said hierarchical network.

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7. The method of operating a broadband modem termination system of claim 6 wherein said step of transmitting data from a downstream data transmission apparatus comprises:

25 converting data received in digital baseband IP format to data in a radio frequency based format for transmission to selected ones of said plurality of end user locations.

8. The method of operating a broadband modem termination system of claim 7 wherein said step of transmitting control data from an upstream data

transmission apparatus comprises:

converting data received in a radio frequency based format to data in digital baseband IP format for transmission to said head-end.

5        9.      The method of operating a broadband modem termination system of claim 6 wherein said step of transmitting data from a downstream data transmission apparatus and said step of transmitting control data from an upstream data transmission apparatus operate independent of each other.

10        10.     The method of operating a broadband modem termination system of claim 6 wherein said step of transmitting control data from an upstream data transmission apparatus comprises:

converting data received in a radio frequency based format to data in digital baseband IP format for transmission to said head-end.

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